THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DIETER HERMELING

Appeal No. 95-2715
Application 08/117,378[1]

ON BRIEF

Before DOWNEY, METZ and GRON, Administrative Patent Judges.

DOWNEY, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1-6, which are all of

[1] Application for patent filed September 7, 1993. According to appellant, the application is a continuation of Application 07/790,623, filed November 12, 1991, now abandoned.

the claims in the application.

Appellant claims a method for the preparation of a certain epoxide ether having formula I, as defined in claim 1 and page 2, line 1 et. seq., of the specification by (a) electrochemical oxidation of an allyl alcohol (Formula II) and an auxiliary electrolyte, or (b) by the reaction of an allyl alcohol with halogen at a pH of from 7.5 to 14, in both cases in the presence of a certain hydroxy-containing compound (Formula III).

Claim 1, the sole independent claim, is illustrative of the invention and is appended to this decision.[2] At the outset, we note that appellant states that claim 3 does not stand or fall together with the remaining claims (Brief, page 2). Since in our view the examiner has not established a prima facie case of obviousness with respect to claim 1, we find it unnecessary to address claim 3 in our decision.

THE REFERENCES

Young	3,394,059	Jul. 23, 1968
Le Duc	3,427,235	Feb. 11, 1969
Lecloux et al. (Lecloux)	5,086,189	Feb. 4, 1992

THE REJECTION

[2] Claim 1 is correctly reproduced in this decision. On page 8, line 5 of appellant's claim 1 attached to their brief, refers to "an alkanol"; such expression was amended (November 30, 1992 and May 6, 1993).

Claims 1-6 stand rejected under 35 U.S.C. 103 as unpatentable over Young in view of Lecloux et al. and Young in view of Le Duc. We reverse.

Opinion

PTO has the burden, via the examiner, to establish a prima facie case of obviousness. In re Lowry, 32 F.3d 1579, 1584, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994); In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In our view the examiner has failed to sustain her burden.

Young is directed to a process for the preparation of epoxides by electrolytically oxidizing olefins in an electrolyte, which contains a soluble hydroxy compound and a soluble halide (col. 1, line 29- column 4, line 21). Young identifies soluble olefins at column 1, lines 51-61 but does not disclose an allyl alcohol as one of the olefins. Lecloux and Le Duc, respectively, teach the use of allyl alcohol and allyl chloride as an olefin reactant in their processes for the production of epoxides. The examiner concludes that one of ordinary skill in the art at the time the invention was made would have found it obvious to replace Young's olefin either with an allyl alcohol of Lecloux or an allyl type compound of Le Duc because the substitution is that of an art recognized equivalent. We disagree.

Appellant correctly points out that Young and Le Duc are directed to electrolytic

oxidation of olefins and Lecloux is directed to a chemical oxidation of olefins in the presence of a catalyst where in each instance the epoxide forms across the ethylenic double bond. The examiner's contention that epoxidation in Young does not occur across the ethylenic double link is without merit. Young's examples support the appellant's position, where Young employs propylene as the reactant in his epoxidation[3] process to form propylene oxide (See Examples I-V). Further, Le Duc's general equation at column 4, lines 25-25, demonstrates the formation of the epoxide across the unsaturated olefin link.

The examiner's contention that the claimed process does not require the formation of an epoxide at the location different from the position of the olefin double bond is also without merit. In the claimed process, an allyl alcohol (Formula II) in the presence of a hydroxy containing compound (Formula III) forms an ether at the 3-position carbon, that is, at the unsaturated olefin link and the hydroxy substituent of the allyl alcohol forms an epoxide at the 1,2 carbon. (See Formula I). Thus the claim as drafted requires epoxide formation at a location different from the unsaturated olefin link. As noted there are two reactions taking place, a substitution reaction involving the hydroxy-containing compound at the unsaturated olefin link which forms an ether and an epoxide reaction involving the

[3] Hackh's Chemical dictionary defines epoxidation as an oxidizing reaction in which an unsaturated olefin link is converted to a cyclic 3-membered ether. (See attached definition).

hydroxy substituent of the allyl carbon. The examiner has not addressed how the combination of references suggests both the formation of an epoxide and ether of Formula I. Rather the examiner contends that appellant has not adequately explained what favors the reaction mechanism of forming the epoxide at the alcohol of the allyl alcohol. However, we point out that an inventor need not understand the scientific mechanism in order to place the invention into the patent system. Exxon Chem. Pats., Inc., v. Lubrizol Corp., 77 F.3d 450, 456, 37 USPQ2d 1767, 1772 (Fed. Cir. 1996)(citing Neuman v. Quigg, 877 F.2d, 1575, 1581, 11 USPQ2d 1340, 1345 (Fed. Cir. 1989))(observing that "it is not a requirement of patentability that an inventor correctly set forth, or even know, how or why the invention works"); Fromson v. Advanced Offset Plate, Inc., 720 F.2d 1565, 1570, 219 USPQ 1137, 1140 (Fed. Cir. 1983) "[I]t is axiomatic that an inventor need not comprehend the scientific principles in which the practical effectiveness of his invention rests.").

Since the examiner has failed to established a prima facie case of obviousness we need not consider any evidence with respect to nonobviounesss.

REVERSED

MARY F. DOWNEY)
Administrative Patent Judge)
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ANDREW H. METZ Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES))
TEDDY S. GRON Administrative Patent Judge	))

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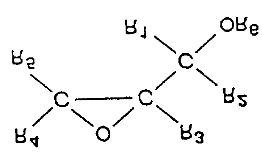
APPENDIX

1. A process for the preparation of an epoxide of the general formula I



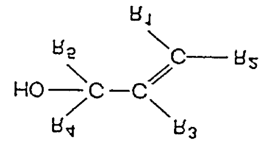
(I),

in which the substituents

R^1, R^2, R^3, R^4, R^5 are independently hydrogen, C_1-C_{20}-alkyl, C_3-C_{12}-cycloalkyl, C_4-C_{20}-cycloalkylalkyl, C_1-C_{20}-hydroxyalkyl, a heterocyclic ring, or an aryl or C_7-C_{20}-arylalkyl group optionally substituted by C_1-C_8-alkyl, C_1-C_8-alkoxy, halogen, C_1-C_4-haloalkyl, C_1-C_4-haloalkoxy, phenyl, phenoxy, halophenyl, halophenoxy, carboxy, C_2-C_8-alkoxycarbonyl, or cyano, or R^1 and R^2 or R^1 and R^3 or R^1 and R^4 or R^3 and R^4 or R^4 and R^5 together form a $(CH_2)_n$ group in which n is an integer from 1 to 10 and which may be optionally substituted by C_1-C_8-alkyl, C_1-C_8-alkoxy, and/or halogen, and

R^6 is C_1-C_8-alkyl, or benzyl,

wherein a allyl alcohol of the general formula II



(II),

in which R^1, R^2, R^3, R^4, R^5 have the meanings stated above, is either

a) electrochemically oxidized in the presence of an auxiliary electrolyte

or

b) oxidized with a halogen at a pH ranging from 7.5 to 14, in both cases in the presence of a compound of the general formula III

(III),

R^6-OH

in which R^6 has the meaning stated above.